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## CURRICULUM VITAE

Georgia Karagiorgi

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### CONTACT INFORMATION

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### EDUCATION

**Massachusetts Institute of Technology**, Cambridge, Massachusetts  
Physics Ph.D. September 2010

**Columbia University**, New York, New York  
Physics M.Phil. May 2008  
Physics M.A. February 2007

**Florida Institute of Technology**, Melbourne, Florida  
Physics B.S. December 2004

### RECENT RESEARCH ACTIVITIES

**Post-Doctoral**, 2010 – present

1. **MicroBooNE Experiment**, Fermi National Accelerator Lab:

- *As a member of the MicroBooNE Collaboration:*  
Development and construction of TPC and PMT readout electronics.  
Investigation of MicroBooNE's sensitivity to neutrino oscillations and MiniBooNE low-energy excess interpretations.  
Investigation of MicroBooNE's potential for proton decay background studies through reconstruction and particle identification software development.
- *Independently:*  
Phenomenology studies on short-baseline oscillations of sterile neutrinos with CP violation or non-standard matter effects, using constraints from MiniBooNE, LSND, and other short-baseline experimental data sets, and study of potential implications for MicroBooNE.  
Sensitivity studies for neutrino oscillations and new physics searches to be used as guidelines for the development of a potential near-future liquid-argon based experimental program for the Booster Neutrino Beamline at Fermilab.  
Sensitivity studies for sterile neutrino oscillation searches via coherent neutrino scattering with a future liquid argon TPC versus a germanium detector.

## Graduate, 2005 – 2010

### 1. MiniBooNE Experiment, Fermi National Accelerator Lab:

- *As a member of the MiniBooNE Collaboration:*  
Updated analysis of the MiniBooNE electron neutrino excess observed in a muon neutrino beam at low energy.  
Search for muon antineutrino to electron antineutrino appearance at high  $m^2$  (*main Ph.D. thesis work*).
- *Independently:*  
Phenomenology studies on short-baseline oscillations of sterile neutrinos with CP violation, using constraints from MiniBooNE neutrino, antineutrino and NuMI off-axis beam data and other short-baseline experimental data sets.  
Phenomenological implications of non-unitarity of the  $3 \times 3$  neutrino mixing matrix and derived experimental constraints from MiniBooNE within a general class of underlying models.

## HONORS AND AWARDS

### Selected list:

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|--|----------------|
| • Tanaka Thesis Prize in Experimental High Energy Physics  | April 2012     |
| • Martin Deutsch Award for Excellence in Experimental Physics, Physics Department, Massachusetts Institute of Technology | September 2009 |
| • Pre-doctoral Certificate of Merit, American Women In Science Educational Foundation                                    | August 2009    |
| • Young Scientist Award for Best Poster Presentation at PANIC'08 Conference, Nuclear Physics A                           | November 2008  |
| • Doug Michael Memorial Experimental Neutrino Challenge Award  | July 2007      |

### Undergraduate:

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|---|---------------|
| • 2 <sup>nd</sup> Place Nationally for the Lunar ISRU 2004-05 University Design Competition           | May 2005      |
| • Distinguished Scholar, Florida Tech   | April 2005    |
| • Dean's List, Florida Tech   | December 2004 |
| • US Achievement Academy National Collegiate Natural Sciences Award                                   | October 2004  |
| • United States Achievement Academy Scholarship   | October 2004  |
| • Wilbur Dean Johnston International Student Scholarship  | Spring 2004   |
| • Florida Academy of Sciences Young Investigator's Award  | June 2003     |
| • Florida Academy of Sciences Outstanding Scientific Presentation at the 67 <sup>th</sup> FAS Meeting | June 2003     |
| • National Physics Honor Society  | April 2003    |
| • Outstanding Sophomore of the Year in Physics, Florida Tech  | April 2003    |
| • Florida Tech Faculty Scholarship  | May 2001      |
| • CASP Undergraduate Scholarship, Cyprus Fulbright Commission   | October 2000  |

## RECENT PRESENTATIONS

(S=Seminar, Pl=Plenary, Pa=Parallel, Po=Poster)

- **Neutrino 2012**, Kyoto, Japan June 2012  
MicroBooNE's Physics Program (Po)
- **NuFact 2012**, Williamsburg, VA July 2012  
Review of short-baseline anomalies and global fits (Pa)
- **TAUP 2011**, Munich, Germany September 2011  
MicroBooNE: Searching for new physics in the neutrino sector with a 100-ton-scale Liquid Argon TPC (Pa)
- **DPF 2011** Conference, Providence, RI August 2011  
Confronting Recent Neutrino Oscillation Data with Sterile Neutrinos (Pa)
- **TIPP 2011** Conference, Chicago, IL June 2011  
MicroBooNE and the Road to Large Liquid Argon Neutrino Detectors (Po)
- **Weak Interactions and Neutrinos 2011 Conference**, Cape Town, SA February 2011  
DAEdALUS: Broadening the reach and impact of neutrino CP-violation searches (Pl)  
Appearance Results from MiniBooNE (Pl)
- **Neutrino 2010** Conference, Athens, Greece June 2010  
Toward Solution of the MiniBooNE and LSND Anomalies (Pl)
- **Neutrino 2010** Conference, Athens, Greece June 2010  
MiniBooNE, LSND and the Sterile Neutrino Mystery (Po)
- **Weak Interactions and Neutrinos 2009 Conference**, Perugia, Italy September 2009  
MiniBooNE Oscillation Results (Pa)
- **Aspen Summer 2009 Physics Meeting**, Aspen, Colorado June 2009  
MiniBooNE Oscillation Results and Global Fits to Sterile Neutrino Models (S)
- **LaThuile 2009** Conference March 2009  
New Results from MiniBooNE (Pl)
- **University of Chicago** HEP Seminar January 2009  
Electron Antineutrino Appearance Results from MiniBooNE (S)
- **FNAL Joint Experimental-Theoretical Seminar** December 2008  
First MiniBooNE e Appearance Results (S)
- **PANIC 2008** Conference, Eilat, Israel November 2008  
A Search for Electron Antineutrino Appearance at MiniBooNE (Po)

## ACTIVITIES

- Association for Women In Science 2009 – Present
- Fermilab UEC Outreach Committee 2008 – 2009
- Fermilab Users Executive Committee 2008 – 2009
- Fermilab Graduate Student Association Officer 2008 – 2009
- Columbia University Graduate Admissions Committee 2006 – 2007
- Women In Science at Columbia (WISC) 2005 – 2008

## RECENT TEACHING ACTIVITIES

- **Columbia University**, Fall 2011 – Spring 2012

Instructor for the Science Honor Program Particle Physics course at Columbia.

- **Columbia University**, Fall 2005 – Spring 2007

Instructor for Pre-Med and Engineering Physics Lab; Grader for undergraduate physics courses; Recitation instructor for Electricity and Magnetism; Teaching assistant for Senior Seminar on Current Physics Research Problems.

## REFERRALS

Prof. Michael H. Shaevitz, Columbia University

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